EXAMINER'S NOTES

US006108677A

# United States Patent [19]

Kiuchi et al.

[11] Patent Number: 6,108,677

[45] Date of Patent: *Aug. 22, 2000

[54] DATA PROCESSING APPARATUS

[75] Inventors: Hiroyoshi Kiuchi, Hachioji; Toshio Tohara, Ome, both of Japan

[73] Assignee: Casio Computer Co., Ltd., Tokyo, Japan

[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

[21] Appl. No.: 08/547,712

[22] Filed: Oct. 19, 1995

[30] Foreign Application Priority Data

Nov. 8, 1994 [JP] Japan ..... 6-298892

[51] Int. Cl.[7] ..... G06F 17/30

[52] U.S. Cl. ..... 707/613; 707/517

[58] Field of Search ..... 395/611, 612, 395/613, 614, 615, 230, 235, 245, 201; 707/100, 101, 102, 103, 104, 517

[56] References Cited

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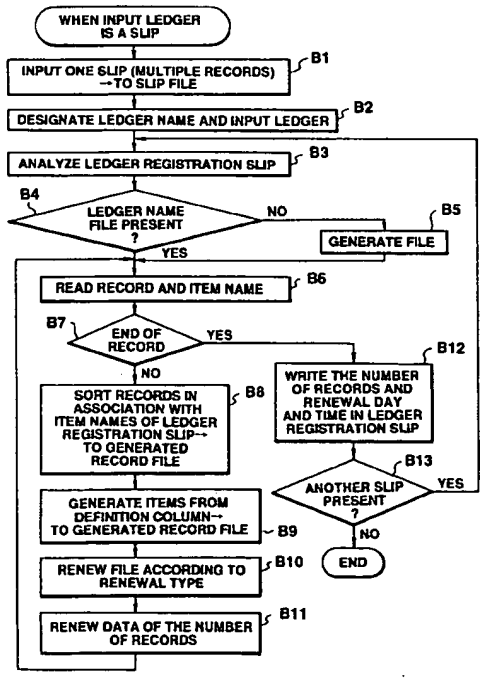
| 5,642,521 | 6/1997 | Kiuchi et al. | 707/517 |
| 5,765,167 | 6/1998 | Kiuchi et al. | 707/200 |

*Primary Examiner*—Thomas G. Black
*Assistant Examiner*—Ruay Lian Ho
*Attorney, Agent, or Firm*—Frishauf, Holtz, Goodman, Langer & Chick

[57] ABSTRACT

A data processing apparatus includes a slip file for storing slip records each including item data corresponding to individual item names of the slip records, and a data file for storing data records in correspondence with individual item names of the data records. A memory stores a correlation table showing a correlation between individual item names of the slip records and individual item names of the data records to be processed at a time of renewal of the slip records. At renewal of the data records in the data file, the item data of each of the slip records in the slip file are arranged to correspond with an arrangement of each of the data records in the data file, in accordance with the correlation table stored in the memory, to thereby generate records for renewal. The data records in the data file are then renewed in accordance with the generated records for renewal.

16 Claims, 26 Drawing Sheets



US-PAT-NO: 6108677
DOCUMENT-IDENTIFIER: US 6108677 A
TITLE: Data processing apparatus

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**Application Filing Date - AD (1):**

19951019

**Detailed Description Text - DETX (10):**

In association with the "input ledger name" in the ledger registration slip 3-1 shown in FIG. 2C, the slip names "transfer slip" and "travel **expense report**" of various kinds of slips are input. This slip is the processing target at the time of renewing the records of the transfer schedule file 3. When there are multiple slips having the same slip name, the lower conceptual slip name is entered slip by slip in association with the title "job name" in order to distinguish those slips from one another. That is, the "job name" is the cell to define the lower conceptual slip name and the same name as the "input ledger name" may be entered in this cell.

**Detailed Description Text - DETX (12):**

illustrated example, "add" which defines the addition of records is entered as the renewal type for the "transfer slip" and "travel **expense report.**"

**Detailed Description Text - DETX (13):**

The individual slip item names constituting a slip are entered item by item in association with the record item names in a data file. More specifically, the individual item names of the transfer slip, "#division (date, 1, 6), "62," slip no, date, issuing company, . . . " are input in association with the record item names of the transfer schedule file 3. Likewise, for the slip of the travel **expense report,** its item names, "#division (date, 1, 6), "63," slip no, expense reporting date, belonging company, . . ." are entered in association with the record item names of the transfer schedule file 3.

**Detailed Description Text - DETX (21):**

When slip data such as a transfer file or travel **expense report** is input from the input section 1, a slip input processor 6 receives and processes this data to produce a slip file 7. A slip item name memory 8 stores the slip item names in the arranging order in addition to the name of this slip file 7 in association with various types of slips in the slip file 7. The slip input processor 6 supplies the slip file 7 and the slip item names associated with the slip to an input processor 9.

**Detailed Description Text - DETX (31):**

More specifically, the person in charge or the like first enters the name of a data file in accordance with the title "ledger name," enters the individual item names according to the record structure of this record structure of this data file, enters the names of the slips or the names of the files to be processed file name slip by slip or file by file, sequentially enters the necessary information in the description columns of the titles "job name," "function name" and "renewal type" in association with those titles, and sequentially enters the slip item names or the record item names of the file (step A2). As a result, the record item names of the transfer schedule file 3 are associated with the individual slip item names of the transfer slip and the travel **expense report** in the generated record file 3-1 shown in FIG. 9B and 9C illustrate.

**Detailed Description Text - DETX (36):**

Next, as the "ledger name" and "input ledger name" are designated through the input section 1, the process associated with the ledger registration slip is initiated (step B2). Assuming that the transfer schedule file 3 is designated as the "ledger name" and a transfer slip and a travel **expense report** are designated as the "input ledger name," then the ledger registration slip analyzer 10 fetches the ledger registration slip 3-1 in the transfer schedule file 3 and analyzes it (step B3).

**Detailed Description Text - DETX (43):**

When the processing of all the records in the transfer slip file is completed, the flow advances to step B12 where the number-of-records data and the renewal day and time (current day and time) are written in the predetermined cells in the ledger registration slip 3-1 and the renewal day and time and the number of entries, previously added to the transfer slip file, are read and written in the predetermined cells in the ledger registration slip 3-1 (see FIG. 2). It is then checked if another slip is present as the "input ledger name" in the ledger registration slip 3-1 (step B13). When there is another such slip which is designated as the processing target, the flow returns to step B3 to repeat the above-described processing for this slip. In this case, as the "travel **expense report**" is present as another slip in the ledger registration slip 3-1 in FIGS. 2B and 2C and this slip is designated as the processing target in step B2, the renewal of the records of the transfer schedule file 3 is executed on the basis of the transfer file of this travel **expense report** in the similar manner.

EXAMINER'S NOTES

US006701376B1

(12) **United States Patent**
**Haverstock et al.**

(10) **Patent No.: US 6,701,376 B1**
(45) **Date of Patent: *Mar. 2, 2004**

(54) **WEB SERVER ENABLING BROWSER ACCESS TO HTML AND NON-HTML DOCUMENTS**

(75) Inventors: **Paul Haverstock**, Acton, MA (US); **Miguel Estrada**, Nashua, NM (US); **Julio Estrada**, Carlisle, MA (US)

(73) Assignee: **International Business Machines Corporation**, Armonk, NY (US)

( * ) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/100,131**

(22) Filed: **Jun. 19, 1998**

**Related U.S. Application Data**

(60) Provisional application No. 60/050,153, filed on Jun. 19, 1997, provisional application No. 60/050,154, filed on Jun. 19, 1997, and provisional application No. 60/050,155, filed on Jun. 19, 1997.

(51) **Int. Cl.**[7] ..... **G06F 15/16**; G06F 15/167

(52) **U.S. Cl.** ..... **709/246**; 709/202; 709/203; 709/217; 709/219

(58) **Field of Search** ..... 709/203, 206, 709/207, 218, 246, 217, 219; 707/513, 10; 348/14.12

(56) **References Cited**

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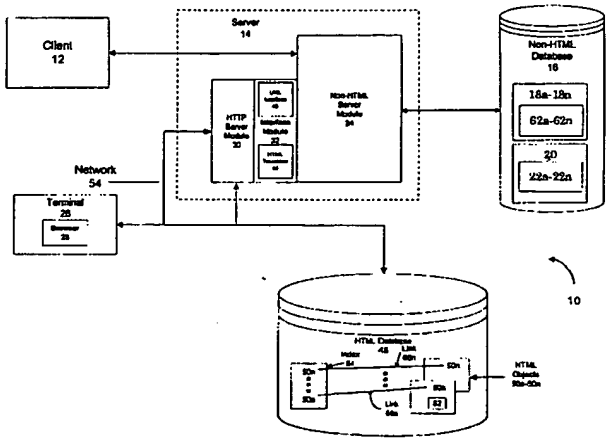
*Primary Examiner*—B. Jaroenchonwanit
(74) *Attorney, Agent, or Firm*—Mintz Levin Cohn Ferris Glovsky and Popeo PC

(57) **ABSTRACT**

A client/server network enables access to non-HTML objects from a web browser. The system includes a database for storing non-HTML files. A system user requests a non-HTML file from a database using a web browser. The web browser transmits the requests to a server via a HTTP server and module. The server locates and retrieves the object requested. The module translates the object to a format supported by the web browser. The HTTP server communicates the translated file to the web browser over a network. The web browser then presents the translated file to the system user.

**17 Claims, 3 Drawing Sheets**



US-PAT-NO: 6701376

DOCUMENT-IDENTIFIER: US 6701376 B1

**See image for Certificate of Correction**

TITLE: Web server enabling browser access to HTML and Non-HTML documents

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**Application Filing Date - AD (1):**

19980619

**Detailed Description Text - DETX (33):**

Workflow is a programmed application that performs one or more tasks according to a pre-defined process (e.g., using agents or macros). Workflow operates to automate,.for example, administrator and end-user tasks upon the occurrence of a predetermined event (e.g., a browser request for a particular document, modifying a particular document, etc.). For example, a system user may create an **expense report** for use by a company. Before the **expense report** may be used, however, it must be reviewed by a manager. Therefore, a process may be programmed into the server 14 in which all created **expense reports** are electronically mailed to a manager for review. Workflow may be applied to any document. For example, if a purchase order is created, the order may require from an accounting department. A process may be programmed into the server 14 to automatically mail the purchase order to personnel in the accounting department for approval. Other types of workflow may also be achieved, for example, transmitting an electronic mail message to a system user notifying the user that a document has been accessed, informing a manager that action is required on a particular document (e.g, a request for approval), etc.

EXAMINER'S NOTES

US006643705B1

(12) **United States Patent**
**Wallace et al.**

(10) **Patent No.: US 6,643,705 B1**
(45) **Date of Patent: Nov. 4, 2003**

(54) **ROUTING OF ELECTRONIC MESSAGES USING A ROUTING MAP AND A STATEFUL SCRIPT ENGINE**

(75) Inventors: **Andrew J. Wallace**, Bellevue, WA (US); **Christopher J. Ambler**, Redmond, WA (US)

(73) Assignee: **Microsoft Corporation**, Redmond, WA (US)

( * ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/280,919**

(22) Filed: **Mar. 29, 1999**

(51) **Int. Cl.**[7] ..... **G06F 15/173**
(52) **U.S. Cl.** ..... **709/240**; 379/219
(58) **Field of Search** ..... 709/200–206, 709/217, 219, 230, 236, 238, 240, 241, 220, 250, 317; 707/100, 200; 379/118, 219, 221; 370/351, 94, 401, 339; 340/572

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Fichman, Finding Patterns in Sequences; http://www.gsia.cmu.edu/andrew/mf4f/work/acad99.pdf.*

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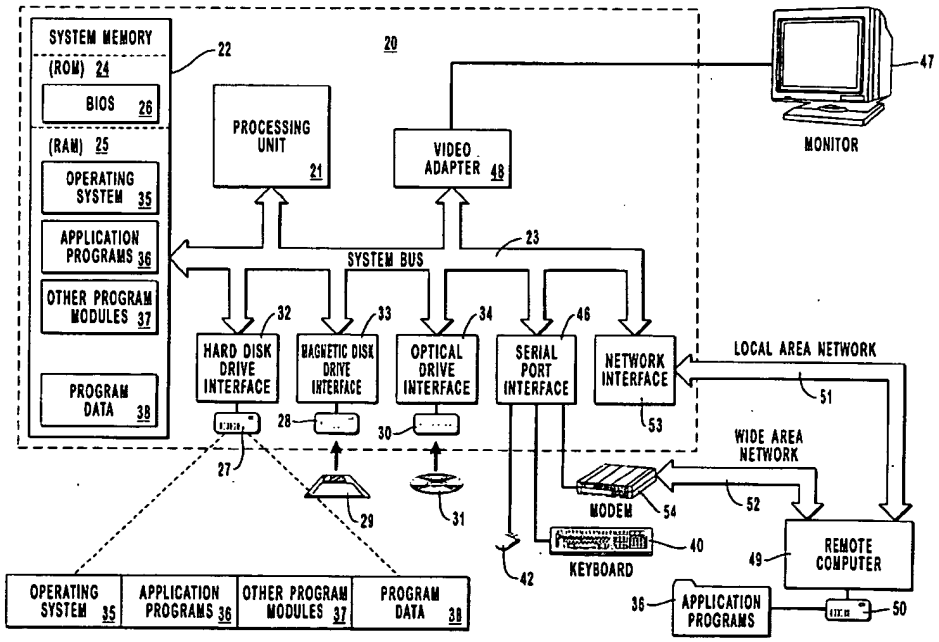
*Primary Examiner*—Robert B. Harrell
*Assistant Examiner*—Thong Vu
(74) *Attorney, Agent, or Firm*—Workman Nydegger

(57) **ABSTRACT**

The present invention enables an electronic message to be distributed sequentially to selected recipients. The electronic message is associated with a routing map, which defines the route of the electronic message. The routing map includes a list of operations, at least some of which are implemented in script. A routing engine controls the current state and the state transition of the routing map while predefined routing objects assist in the manipulation and processing of the routing map. Routing maps are associated with folders and any electronic message dropped in the folder is associated with the routing map. The operations of the routing map are executed in a stateful manner in response to events occurring in the messaging system until the electronic message has been sequentially distributed to the intended recipients.

**10 Claims, 5 Drawing Sheets**



US-PAT-NO: 6643705

DOCUMENT-IDENTIFIER: US 6643705 B1

****See image for Certificate of Correction****

TITLE: Routing of electronic messages using a routing map and a stateful script engine

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**Application Filing Date - AD (1):**

19990329

**Detailed Description Text - DETX (11):**

Note that each client can perform some act with regard to the electronic message before it is sent to the next client. The acts performed by the clients are typically related to the sequential distribution of the electronic message. For example, the user might submit an **expense report** to client A for approval in step 121. In step 122, the electronic message is then sent to client B in the accounting department. Finally, in step 123, the electronic document is sent to client C, who is responsible for archiving. The point is that the acts performed by the clients or intended recipients do not occur contemporaneously in this example, but instead occur sequentially. However, in other contexts, the user could specify that copies of an electronic message are to be sent to two or more recipients a the same time. The routing instructions by which the route of the electronic message is defined can be flexible enough to enable the message to be sent to recipients sequentially, simultaneously, or otherwise.

EXAMINER'S NOTES

US006009408A

# United States Patent [19]

Buchanan

[11] Patent Number: 6,009,408

[45] Date of Patent: Dec. 28, 1999

[54] AUTOMATED PROCESSING OF TRAVEL RELATED EXPENSES

[75] Inventor: Carla C. Buchanan, Mission, Kans.

[73] Assignee: Electronic Data Systems Corporation, Plano, Tex.

[21] Appl. No.: 08/625,971

[22] Filed: Apr. 1, 1996

[51] Int. Cl.[6] ..... G06F 17/60

[52] U.S. Cl. ..... 705/11; 705/5

[58] Field of Search ..... 705/1, 5, 6, 7, 705/11; 235/375, 376, 379, 380

[56] References Cited

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Shellenberger; "A New Concept in T&E Management"; Compensation and Benefits Review; v23 n6; p13(5), Nov. 1991.

Rosen; "Amex's Help on Expense Reports Draws Conrail"; Business Travel News; ISSN: 8750-3670; p. 12, Feb. 1993.

Carroll; "Cos. Eying T&E Reporting Alternatives, Experts Say"; Travel Weekly; v54 n82; p57(2), Oct. 1995.

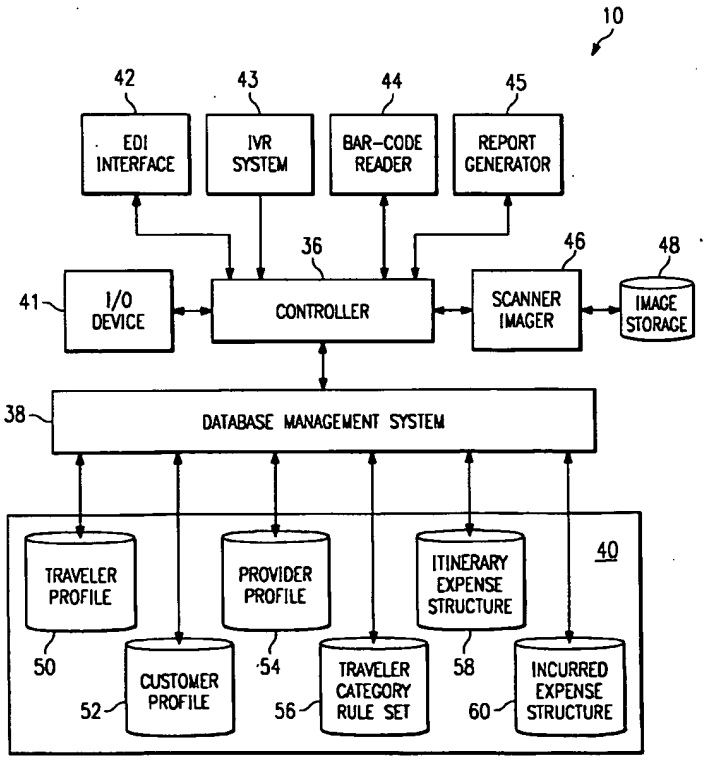
*Primary Examiner*—Stephen R. Tkacs

*Attorney, Agent, or Firm*—L. Joy Griebenow; Baker & Botts L.L.P.

[57] ABSTRACT

A system (10) for facilitating the processing of travel related expenses includes a database (40) which stores a traveler profile (50), a customer profile (52), and a traveler category rule set (56). A controller (36), connected to the database (40), receives travel itinerary information for a traveler associated with a customer (12). The controller (40) determines a specified amount of funds to be allocated to the traveler and transfers the specified amount of funds from an account of the customer (12). In addition, the controller (40) provides at least a portion of the transferred funds to the traveler, for example, through an automatic teller machine network (20). The controller (40) receives a record, for example, via an electronic data interchange interface (24), of any transactions in which the traveler spends the portion of transferred funds, thereby facilitating the processing of travel related expenses.

17 Claims, 3 Drawing Sheets



US-PAT-NO: 6009408
DOCUMENT-IDENTIFIER: US 6009408 A
TITLE: Automated processing of travel related expenses

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**Application Filing Date - AD (1):**

19960401

**Brief Summary Text - BSTX (5):**

Furthermore, in addition to submitting the receipts, a traveler was often required to fill out a detailed **expense report**. Before reimbursing the traveler, the ultimate payer would review the receipts and detailed **expense report** to ensure that all expenses were legitimate and/or fell within appropriate guidelines, such as, a maximum dollar amount for dinner. After reimbursing the traveler, the ultimate payer was then required to maintain a record of the receipts for tax purposes. Consequently, the prior method of processing travel-related expenses was extremely burdensome, time-consuming, and inefficient.

**Detailed Description Text - DETX (25):**

Report generator 45 is electronically linked to controller 36. Report generator 45 can function to generate reports detailing the expenses predicted for or actually incurred by various travelers. Report generator 45 may also function to report predicted expenses against actual expenses for a particular travel itinerary. Report generator 45 may organize the **expense reports** in various formats, including by customer, by traveler, or by travel itinerary.

**Detailed Description Text - DETX (26):**

Scanner imager 46 is also connected to controller 36. Scanner imager 46 functions to generate electronic images of paper documents, such as expense receipts, by "scanning" the documents. These electronic images can be used by travel information processing system 10 for **expense reports**. Scanner imager 46 may be implemented as any of a variety of currently available image scanners.

**Detailed Description Text - DETX (41):**

At step 124, travel information processing system 10 reports the record of actual expenses for an itinerary against the predicted expenses for the itinerary and then generates an **expense report**. The **expense report** may be organized in various formats, including by customer, by traveler, or by travel itinerary. Generally, the generated report may include information specifying the time and dates of travel, the type and cost of all travel arrangements used by the traveler, the times and dates for all transactions, the services or products purchased, the predicted expenses for the traveler, the actual expenses for the traveler, and the difference between the predicted expenses and the corresponding actual expenses. For example, an **expense report** generated for J. Smith may include information about the American Airlines flight, the 4-day hotel accommodations, the rental car, the $1000.00 in funds allocated to Smith for travel expenses, each cash withdrawal made by Smith, and each transaction relating to products or services actually purchased by Smith. The generated report may also include electronic images or copies of the receipts for each actual purchase of a service or product. This step is described below in more detail with reference to FIG. 4.

**Detailed Description Text - DETX (43):**

FIG. 4 illustrates a flow chart of a method 200 by which travel information processing system 10 reports actual travel expenses against predicted travel expenses and generates an **expense report**. Method 200 may be implemented as a subroutine of method 100 described above with reference to FIG. 3.

**Detailed Description Text - DETX (47):**

At step 212, travel information processing system 10 then determines whether there are any unpredicted actual transactions. If there are no unpredicted travel expenses, an **expense report** for the travel itinerary is generated by report generator 44 at step 222. The transaction report may specify the predicted transactions and the actual transactions.

**Detailed Description Text - DETX (51):**

At step 222, report generator 45 generates an **expense report**. As described above, report generator 45 may organize the **expense reports** in various formats, including by customer, by traveler, or by travel itinerary. The **expense report** may detail the predicted transactions, the actual transactions, the unpredicted actual transactions, and the amount by which each unpredicted actual transaction exceeds an appropriate guideline.

**Other Reference Publication - OREF (3):**

Rosen; "Amex's Help on **Expense Reports** Draws Conrail"; Business Travel News; ISSN: 8750-3670; p. 12, Feb. 1993.

EXAMINER'S NOTES

US006084585A

# United States Patent [19]

Kraft et al.

[11] Patent Number: 6,084,585

[45] Date of Patent: Jul. 4, 2000

[54] SYSTEM FOR DIRECTLY ACCESSING FIELDS ON ELECTRONIC FORMS

[75] Inventors: **Reiner Kraft**, Gilroy; **Qi Lu**, San Jose; **Ron Yair Pinter**, Palo Alto, all of Calif.

[73] Assignee: **International Business Machines Corp.**, Armonk, N.Y.

[21] Appl. No.: **09/124,635**

[22] Filed: **Jul. 29, 1998**

**Related U.S. Application Data**

[60] Provisional application No. 60/067,675, Dec. 5, 1997.

[51] **Int. Cl.**[7] ..... **G06F 3/14**

[52] **U.S. Cl.** ..... **345/352**; 345/353; 345/356; 345/329; 707/507; 707/505

[58] **Field of Search** ..... 345/352, 353, 345/356, 357, 975, 347, 329; 707/507, 508, 505, 506, 906, 503

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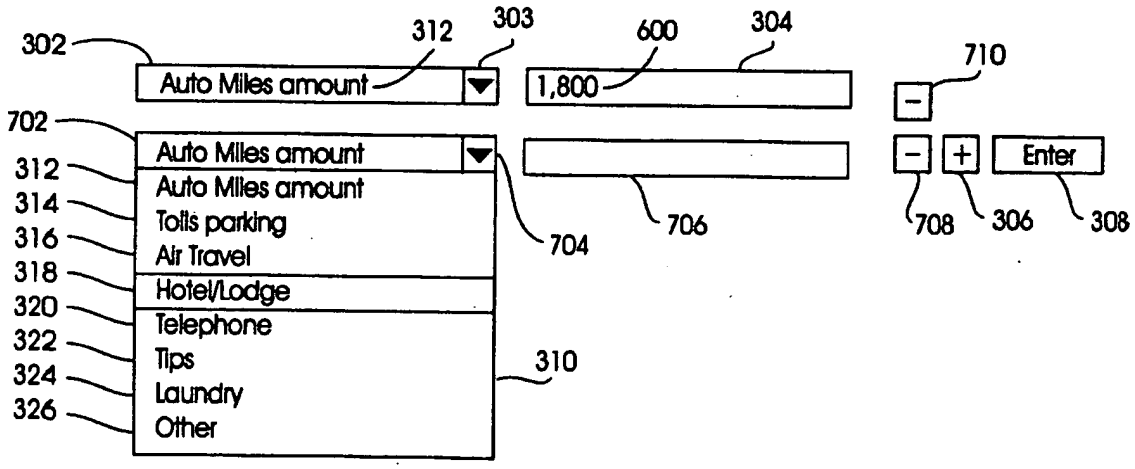
| 5,920,866 | 7/1999 | Crim | 345/352 X |

*Primary Examiner*—Raymond J. Bayerl
*Attorney, Agent, or Firm*—Dan Hubert & Assoc.

[57] **ABSTRACT**

A computer system provides a graphical user interface (GUI) to assist a user in completing electronic forms. The computer includes components such as a processor, user interface, and video display. Using the video display, the processor presents a row entry template including a menu field and an associated data field. The user completes the menu field by selecting a desired menu entry from a list of predefined menu entries. The user completes the data field by entering data into the data field. This format is especially useful when the data entry provides data categorized by the menu entry, explains the menu entry, or otherwise pertains to the menu entry. Each time the GUI detects activation of a form expand key, it presents an additional row entry template for completion by the user. Upon selection of a submit key, data of the completed form is sent to a predefined destination, such as a linked list, table, database, or another computer. Thus, by planned selection of menu entries, the user can limit his/her completion of an electronic form to blanks applicable to that user, avoiding the others. Nonetheless, the form can be easily expanded row by row to accommodate as many different blanks as the user wishes to complete. The invention may be implemented by a host sending a remote computer machine-executable instructions which the remote computer executes to provide the GUI, where the remote computer ultimately returns the completed form data to the host.

**33 Claims, 7 Drawing Sheets**



US-PAT-NO: 6084585
DOCUMENT-IDENTIFIER: US 6084585 A
TITLE: System for directly accessing fields on electronic forms

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**Application Filing Date - AD (1):**

19980729

**Brief Summary Text - BSTX (5):**

Prior to the widespread use of computers, data-entry forms were filled out by hand, and were equipped with specific spaces for entering specific information. For instance, a typical **expense report** form would have spaces for mileage, air travel, lodging, telephone charges, meals, etc. With the incorporation of computers into virtually every aspect of society, it is common to complete these same data-entry forms using a computer. The now-computerized data-entry forms, like their counterparts, often include many different blanks for users to fill out. For any given user, some form blanks may be applicable and others not. Although this is not a particular problem with paper forms, a computer user must pass through or skip over many data-entry fields that do not pertain to them, thereby wasting valuable time scrolling, paging, and otherwise positioning the lengthy form over a limited viewing space.

**Detailed Description Text - DETX (13):**

The menu field is pre-programmed with a number of menu entries, according to the type of form being completed. The user may choose a menu entry user from the menu field by operating the interface 104 to activate a suitable menu field viewer, such as a pull-down menu, scrolling menu, expanding window displaying all menu entries, etc. If the form is an **expense report,** some exemplary menu entries may comprise mileage, parking fees, air travel, hotel/lodging, telephone, tips, laundry, and a generic category for data which does not belong in the listed menu entries.

**Detailed Description Text - DETX (14):**

The data field is associated with the menu field, and is initially presented blank and ready to receive input from the user. However, the data field may be pre-programmed with standard or common input data. Input from the user is generally received by the user typing the appropriate information into the keyboard, however, any other user interface device may be used, such as a mouse being used to select pre-programmed information. Although the example of an **expense report** is used herein, the present invention may be used with any number of applications, such as constructing a query for an Internet search engine, completing a software registration form, constructing a spreadsheet, or any other application requiring the completion of an electronic form.

**Detailed Description Text - DETX (35):**

The operation of the present invention will be more fully discussed in terms of the completion of an **expense report,** which will serve as the example throughout the remainder of this disclosure. An **expense report** is particularly useful because such known **expense reports** are frequently left incomplete because a number of fields are inapplicable to the traveler's particular trip. For instance, on one business trip, the traveler may only use hotel and car rental expenses, while on the next trip, the traveler may have incurred airfare and cab fare. If the traveler uses a paper form or a known electronic form, this same form must be used for both trips, resulting in many blank fields for each trip. In such circumstances, the user would save time by entering only the pertinent information into the form, while ignoring those remaining categories of expenses. The process of providing direct access to fields on electronic forms, as mentioned above, is described in greater detail below by combining exemplary displays shown in FIGS. 3-9 with the sequence 200 shown in FIG. 2.

**Detailed Description Text - DETX (44):**

In cases with a history of expense reporting using a particular menu field entry, the data field associated with the menu field may be automatically completed with the most recent entry. For instance, if the user completing the **expense report** has previously selected a "auto miles amount", and at that time had entered a data field value, the present invention may automatically enter the previously entered data field value in an attempt to minimize the time required to complete the form. Alternatively, the present invention may provide a listing of previously-entered data field values, thus allowing the user to select the appropriate data entry, or simply enter a new data field information. For example, this may be accomplished by providing a data entry display button 602, which when activated by the user, provides a table listing of the previously entered data entries, and a user may select one of the data entries presented. In the event the pre-entered data field information is not correct, the user may simply modify or overwrite such entry with the corrected information using the user interface. Additionally, in the event that information entered into a data field, or the menu field selected is incorrect, the user may simply edit that data within the data field or the menu field selected to the correction information. Once the information has been entered by the user in steps 220, 222, and 224, the information is then stored in memory in step 225.

**Detailed Description Text - DETX (57):**

If all verification steps are completed and the completed form is in appropriate condition for submission, the form is then submitted to the program intended to receive the form. For instance, in the **expense report** example, the intended program may be an accounting program for reimbursement of travel expenses, which receives the completed form, calculates reimbursement values, and generates a reimbursement check to the user. As an alternative to transmission of the entire form, only the user-entered data may be transmitted to the intended program to minimize the length of the transmission and the amount of information to be transmitted.